



## Influence of climate and river level on the incidence of malaria in Cacao, French Guiana

**Author(s):** Basurko C, Hanf M, Han-Sze R, Rogier S, Heritier P, Grenier C, Joubert M, Nacher M, Carme B  
**Year:** 2011  
**Journal:** Malaria Journal. 10: 26

### Abstract:

**BACKGROUND:** The epidemiological profiles of vector-borne diseases, such as malaria, are strongly associated with environmental conditions. An understanding of the effect of the climate on the occurrence of malaria may provide indirect insight into the anopheles mosquito vectors endemic to a particular region. The association between meteorological and hydrographical factors and the occurrence of malaria was studied in a village in French Guiana during an epidemic caused essentially by *Plasmodium vivax*. **METHODS:** A cohort of confirmed cases of *P. vivax* malaria occurring between 2002 and 2007 was studied to search for an association between the number of new infection episodes occurring each month, mean, maximum and minimum monthly temperatures, cumulative rainfall for the month and the mean monthly height of the river bordering the village, with the aid of time series. Cross-correlation analysis revealed that these meteorological factors had large effects on the number of episodes, over a study period of 12 months. **RESULTS:** Climatic factors supporting the continuance of the epidemic were identified in the short-term (low minimum temperatures during the month), medium-term (low maximum temperatures two months before) and long-term (low maximum temperatures nine months before and high lowest level of the river 12 months before). Cross-correlation analysis showed that the effects of these factors were greatest at the beginning of the short rainy season. **CONCLUSION:** The association between the river level and the number of malaria attacks provides clues to better understand the environment of malaria transmission and the ecological characteristics of the vectors in the region.

**Source:** <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3042423>

### Resource Description

#### Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

#### Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Food/Water Security, Precipitation, Temperature

# Climate Change and Human Health Literature Portal

**Temperature:** Fluctuations

**Geographic Feature:** 

resource focuses on specific type of geography

Rural, Tropical

**Geographic Location:** 

resource focuses on specific location

Non-United States

**Non-United States:** Central/South America

**Health Impact:** 

specification of health effect or disease related to climate change exposure

Infectious Disease

**Infectious Disease:** Vectorborne Disease

**Vectorborne Disease:** Mosquito-borne Disease

**Mosquito-borne Disease:** Malaria

**Mitigation/Adaptation:** 

mitigation or adaptation strategy is a focus of resource

Adaptation

**Model/Methodology:** 

type of model used or methodology development is a focus of resource

Outcome Change Prediction

**Resource Type:** 

format or standard characteristic of resource

Research Article

**Timescale:** 

time period studied

Short-Term (

**Vulnerability/Impact Assessment:** 

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content